

Symmetrical Snow Fun

Reporting Category Geometry

Topic Drawing a line of symmetry

Materials

- Story about snow
- Circular Sled (attached)
- Yard stick or other straight stick
- Snow Symmetry sheet (attached)
- Plastic straws
- Scissors
- Snowy Symmetrical Sort sheet (attached)

Vocabulary

half, fourths, whole, line of symmetry, symmetrical

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Engage students by reading aloud a story about snow.
2. Use the Think-Pair-Share strategy to have students think about something they might do in the snow or play with in the snow. List these items on the board.
3. Display the Circular Sled image, and distribute copies of it. Pose the following scenario:
"You want to go down the hill on this sled with your friend. Each of you has to have exactly the same space on the sled. How could you share the space on this sled equally? You need to show the two spaces, using one straight line."
4. Ask students to come to the board and demonstrate their straight lines by holding up a yard stick. As students share their thinking, use guiding questions like those below to engage them in mathematical conversation.
 - Is this line straight?
 - Do you see anything on this side of the sled that is not on the other side of the sled?
 - Does this line give you and your friend the same amount of space on the sled?
 - Is there another way to share this sled?
 - Can we turn the line like this (diagonal, vertical, or horizontal)?
 - Can there be more than one way to share this sled equally?
5. When the class determines how the sled can be evenly shared, have students draw the line on their copies of the sled image. Then, collect and post the various sled images on the board. Discuss which lines are correct and why not all correct lines are drawn exactly the same way.

6. Explain that the lines they just drew are called *lines of symmetry* and that a figure is *symmetrical* when one half of it is the mirror image of the other half.
7. Distribute copies of the Snowy Symmetry sheet and straws. Direct each student to manipulate the straw to find a line of symmetry on each image and to draw the line of symmetry, if the image has one.
8. After students have found the lines of symmetry in the images, have them cut apart and sort the images into two groups: symmetrical and not symmetrical. Have them use copies of the Snowy Symmetrical Sort sheet to sort the images.
9. Review and summarize with the class what students did and learned in the activity. Ask the class to summarize their ideas by answering the question, “How do you know when a shape is symmetrical?”

Assessment

- **Questions**
 - Can a line of symmetry be curvy?
 - Can something have more than one line of symmetry?
 - If a cake has one line of symmetry, how many people can share it equally? What if it has two lines of symmetry?
- **Journal/Writing Prompts**
 - Think of a food that is symmetrical and a food that is not symmetrical. Write about why each food is or is not symmetrical.
 - Write your name on a large sheet of paper. Are any letters in your name symmetrical? Does your name have more symmetrical letters than not symmetrical letters?

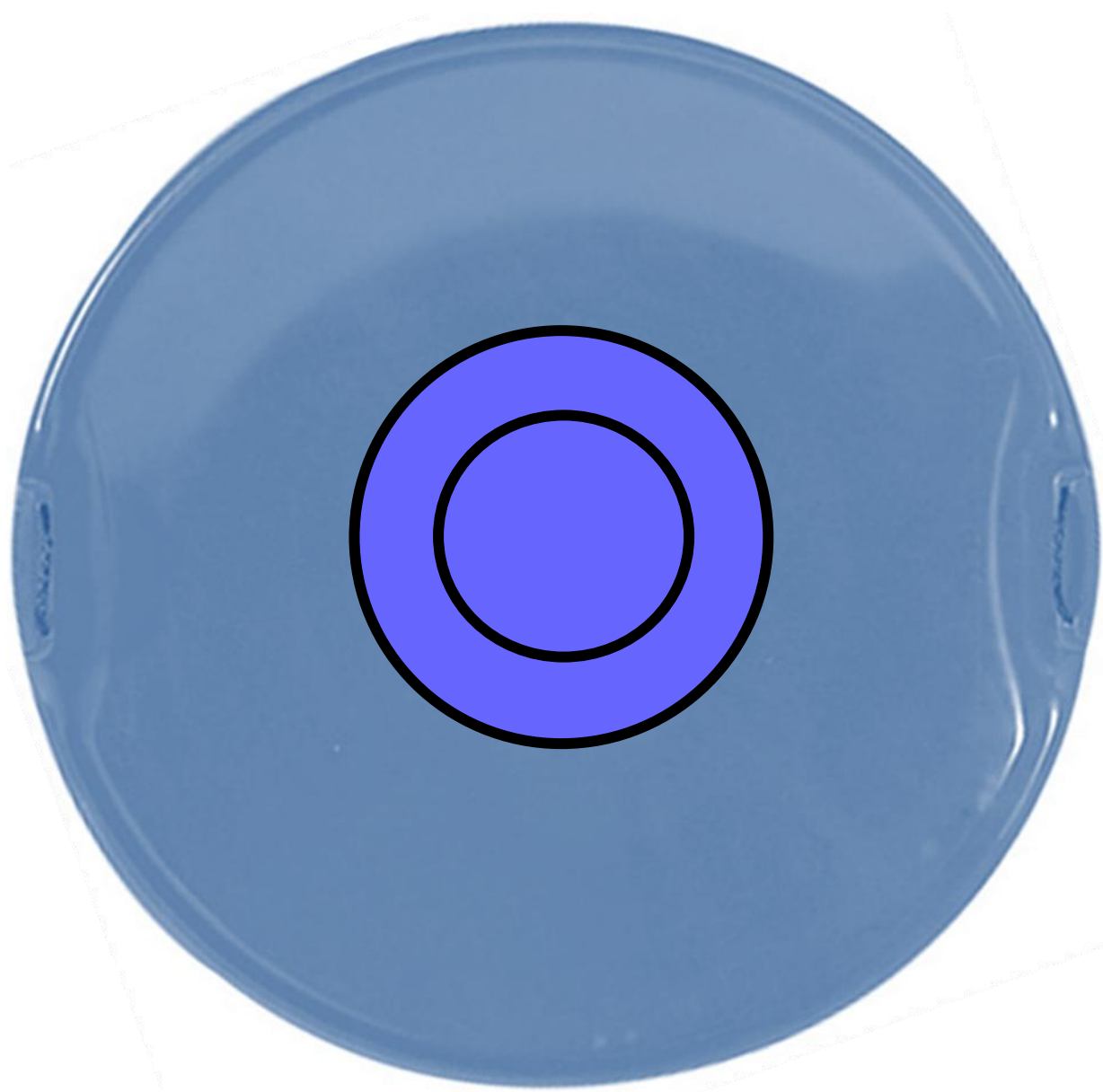
Extensions and Connections (for all students)

- Have students use paint and construction paper to create a fully symmetrical shape. They can fold the paper in half, drip paint in one or multiple colors on one half of the paper, and then fold the paper again, allowing the paint to make a mirror image on the other half.
- Challenge advanced students to draw their own symmetrical shapes. Have them test the shapes for symmetry by folding.
- Relate this lesson to fractional concepts by using the vocabulary *half*, *halves*, *quarter*, and *quarters*.

Strategies for Differentiation

- Emphasize the “s” sound in *symmetry* and *same* to help students connect with the vocabulary.
- Do the Snowy Sort with a small group while other groups experiment with mirrors to show lines of symmetry.
- Allow students to use moveable adhesive sticks to show many lines of symmetry on an image.

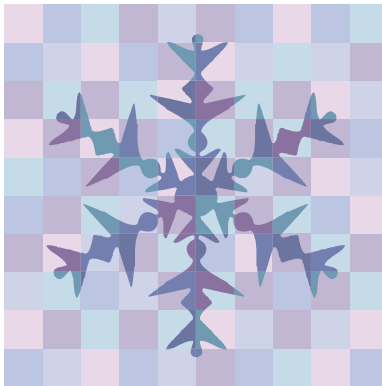
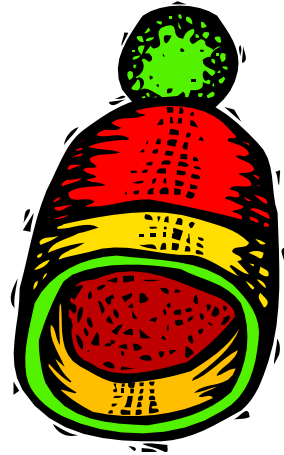
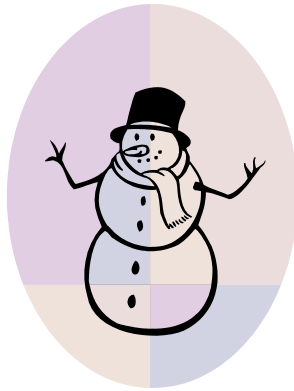
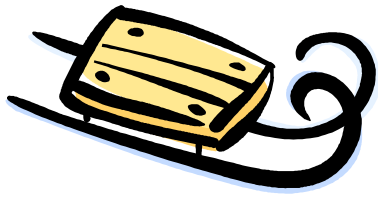
Circular Sled



Snowy Symmetry

Name _____

Does each snowy picture have a line of symmetry? If it does, draw it.



Snowy Symmetrical Sort

Name _____

Symmetrical	Not Symmetrical

How do you know whether a shape is symmetrical or not?
